AQUEOUS SCRUBBING OF NO_x FROM STACK GASES. G. A. Chappell, Esso Research and Engineering Company, Linden, New Jersey, 07036.

A bench-scale batch scrubbing unit has been used to screen various solutions for NO_x absorption from synthetic flue gas. The blended gas stream contained 12% CO_2, 3% O_2, 700 ppm NO_x, 8% steam, variable SO_2, and N_2. The mixture, flowing at 3200 cc/min, bubbled through one liter of scrubbing solution maintained at 125°F. The effluent gas was analyzed spectrophotometrically for NO, NO_2 and SO_2. We investigated the effect of NO_2 addition on the sorption of NO by using a flue gas containing 350 ppm each of the two oxides. Of the many solutions and slurries studied, sulfites and amines were the most effective at NO_x absorption. Concentrated ammonium hydroxide (65°F) removed 74% of the NO and 80% of the NO_2 whereas a saturated sodium sulfite solution (125°F) absorbed 16% of the NO and 100% of the NO_2. A slurry of $CaSO_3$ absorbed 35% of the NO and 66% of the NO_2. The sulfite systems are quite unreactive toward NO in the absence of NO_2; however, the presence of NO has little effect upon the absorption of NO_2. These and other results will be presented and discussed in more detail.